TITLE

PENENTUAN KONSENTRASI HAMBAT MINIMUM DAN KONSENTRASI BUNUH MINIMUM MINYAK ATSIRI KULIT JERUK NIPIS (CITRUS AURANTIFOLIA (CHRISTM.) SWINGLE) TERHADAP ISOLAT KLINIS CANDIDA ALBICANS

ABSTRACT

Candida albicans adalah salah satu jamur penyebab infeksi oportunistik pada manusia. Saat ini telah dilaporkan adanya resistensi Candida albicans terhadap beberapa golongan obat antijamur sehingga perlu dilakukan pencarian dan pengembangan obat antijamur yang lebih aman dan ampuh. Minyak atsiri dari kulit jeruk nipis (Citrus aurantifolia (Christm.) Swingle) telah diketahui memiliki aktivitas antijamur terhadap Candida albicans. Penelitian ini bertujuan untuk mengetahui konsentrasi hambat minimum (KHM) dan konsentrasi bunuh minimum (KBM) minyak atsiri kulit jeruk nipis terhadap isolat klinis Candida albicans. Penelitian ini menggunakan rancangan acak lengkap (RAL) dengan 7 perlakuan dan 3 kali pengulangan. Penentuan KHM dan KBM dilakukan dengan metode dilusi yang terdiri dari kelompok kontrol negatif, kontrol positif, serta kelompok perlakuan dengan konsentrasi 0,5%, 1%, 2%, 4% dan 8%. Konsentrasi hambat minimum diketahui dengan mengukur nilai absorbansi masing-masing suspensi uji menggunakan spektrofotometer. Konsentrasi bunuh minimum diketahui dengan menghitung jumlah koloni pada media SDA. Data dianalisis menggunakan uji Kruskall-Wallis dan uji post hoc Mann-Whitney pada CI 95%. Konsentrasi hambat minimum ditunjukkan pada konsentrasi 4% dengan nilai absorbansi yang menurun, meskipun secara statistik tidak berbeda nyata. Hasil analisis data KBM menggunakan uji Kruskall-Wallis menunjukkan minyak atsiri kulit jeruk nipis memiliki pengaruh yang nyata terhadap pertumbuhan Candida albicans. Analisis data KBM menggunakan uji post hoc Mann-Whitney menunjukkan nilai KBM adalah pada konsentrasi 4%.

Kata Kunci: (Citrus aurantifolia (Christm.) Swingle), Minyak Atsiri, Konsentrasi Hambat Minimum, Konsentrasi Bunuh Minimum, Candida albicans

Candida albicans is one of the fungi that cause opportunistic infections in humans. Currently, Candida albicans have developed the resistence to several classes of antifungal drugs so that it is very necessary to explore and develop the safer and more potent antifungal drugs. Essential oils of lime peel (Citrus aurantifolia (Christm.) Swingle) have been known to have antifungal activity against Candida albicans. The purpose of this study was to determine minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC) of the essential oils of lime peel against clinical isolates of Candida albicans. This study used a Completely Randomized Design (CRD) with 7 treatments and 3 replications. Minimum inhibitory concentration and minimum fungicidal concentration determination used dilution method consist of negative control group, positive control group and treatment groups with concentration of 0,5%, 1%, 2%, 4% and 8%. Minimum inhibitory concentration determined by measuring the absorbance of each diluted suspension using a spectrophotometer. Minimum fungicidal concentration determined by counting the number of colonies appeared on SDA media. Data were analyzed using Kruskall-Wallis test and Mann-Whitney post hoc test on CI 95%. Minimum inhibitory concentration was obtained at concentration of 4% showed by the decrease of the absorbance, although not statistically different. The results of minimum fungicidal concentration data analyzed by Kruskall-Wallis test showed that lime peel essential oil has a significant effect on the growth of Candida albicans. Minimum fungicial concentration data analyzed by Mann-Whitney post hoc test showed that MFC was obtained at concentration of 4%.

Key Word: (Citrus aurantifolia (Christm.) Swingle), Essential oils, Minimum Inhibitory Concentration, Minimum Fungicidal Concentration, Candida albicans